

ABSTRACT

An improved electrode capable of smaller variances and mean breakdown voltage, increased breakdown reliability, smaller electron emission turn-on requirements, and stable electron emissions capable of high current densities include a first electrode material, an adhesion-promoting layer disposed on at least one surface of the first electrode material, and a nanostructure-containing material disposed on at least a portion of the adhesion promoting layer. An improved gas discharge device is provided incorporating an electrode formed as described above. An improved circuit incorporating an improved gas discharge tube device as set forth above is also provided. Further, an improved telecommunications network, incorporating an improved gas discharge tube device as set forth above can also be provided. An improved lighting device is also provided incorporating an electrode constructed as described above.